

Complete Summary

GUIDELINE TITLE

Esophageal dilation.

BIBLIOGRAPHIC SOURCE(S)

Egan JV, Baron TH, Adler DG, Davila R, Faigel DO, Gan SL, Hirota WK, Leighton JA, Lichtenstein D, Qureshi WA, Rajan E, Shen B, Zuckerman MJ, Vanguilder T, Fanelli RD, Standards of Practice Committee. Esophageal dilation. *Gastrointest Endosc* 2006 May; 63(6): 755-60. [72 references] [PubMed](#)

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE
 METHODOLOGY - including Rating Scheme and Cost Analysis
 RECOMMENDATIONS
 EVIDENCE SUPPORTING THE RECOMMENDATIONS
 BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS
 CONTRAINDICATIONS
 QUALIFYING STATEMENTS
 IMPLEMENTATION OF THE GUIDELINE
 INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT
 CATEGORIES
 IDENTIFYING INFORMATION AND AVAILABILITY
 DISCLAIMER

SCOPE

DISEASE/CONDITION(S)

Anatomic or functional narrowing of the esophagus (esophageal strictures) caused by benign or malignant conditions, including:

- Peptic strictures
- Shatzki's ring
- Strictures resulting from radiation therapy, sclerotherapy, photodynamic therapy, esophageal surgery, or caustic ingestion
- Congenital strictures
- Eosinophilic esophagitis
- Achalasia

GUIDELINE CATEGORY

Evaluation
Management
Treatment

CLINICAL SPECIALTY

Gastroenterology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To provide practical recommendations regarding the indications and techniques for the use of esophageal dilation

TARGET POPULATION

Patients with documented anatomic, and sometimes functional, narrowing of the esophagus caused by a variety of benign and malignant conditions

INTERVENTIONS AND PRACTICES CONSIDERED

1. Esophageal dilation with mercury or tungsten-filled bougies (Maloney or Hurst), wire-guided polyvinyl dilators (Savary-Gilliard or American), or through-the-scope balloon dilators
2. Fluoroscopic control of dilation
3. Use of the "rule of 3" for dilation
4. Corticosteroid injection before or after dilation
5. Botulinum toxin injection as alternative to dilation
6. Surgical myotomy as alternative to dilation
7. Proton pump inhibitor administration to prevent stricture recurrence

MAJOR OUTCOMES CONSIDERED

- Relief of dysphagia
- Rate of complications, including perforation

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

A MEDLINE literature search was performed, and additional references were obtained from the bibliographies of the identified articles and from recommendations of expert consultants.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Guidelines for appropriate use of endoscopy are based on a critical review of the available data and expert consensus.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

Published cost analyses were reviewed:

- Cost analysis evaluations have suggested that initial esophageal dilation with therapeutic intent is less costly than a barium swallow in patients with a history suggesting esophageal obstruction.
- Cost analysis models indicate that, for otherwise healthy patients with achalasia, initial pneumatic dilation was the least costly strategy compared with botulinum toxin injection or laparoscopic Heller myotomy.

METHOD OF GUIDELINE VALIDATION

Not stated

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not applicable

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The summary of recommendations is followed by evidence grades (A-C) identifying the type of supporting evidence. Definitions of the evidence grades are presented at the end of the "Major Recommendations" field.

Indications for Dilation

The primary indication for esophageal dilation is to relieve dysphagia. Cost analysis evaluations have suggested that initial esophageal dilation (EGD) with therapeutic intent is less costly than a barium swallow in patients with a history suggesting esophageal obstruction. Additionally, early endoscopy should be the initial diagnostic test performed in patients with dysphagia who are ≥ 40 years old and those with concomitant heartburn, odynophagia, or weight loss because of the high yield of finding significant pathology in these patients.

Esophageal strictures can be structurally categorized into two groups: simple and complex. Simple strictures are symmetric or concentric with a diameter of ≥ 12 mm or easily allow passage of a diagnostic upper endoscope. Complex strictures have one or more of the following features: asymmetry, diameter ≤ 12 mm or inability to pass an endoscope. Regardless of the cause, dysphagia is an indication for dilation of benign strictures. Although some endoscopists suggest that large-bore dilators be passed empirically if the endoscopy has normal results, results from two of three studies have shown that empiric dilation does not improve dysphagia scores. Thus, because of the potential risk of perforation with use of large-bore dilators, particularly in patients with unrecognized eosinophilic esophagitis, empiric dilation cannot be routinely recommended if no structural abnormalities are seen at endoscopy.

Endoscopic dilation of malignant strictures can be done to assist the completion of endoscopic procedures such as endoscopic ultrasonographic tumor staging or to aid the placement of an esophageal stent to achieve temporary palliation. Most malignant strictures respond to dilation, but relief of dysphagia is transient and more definitive treatment is usually needed. The dysphagia caused by malignant extrinsic compression of the esophagus responds poorly to esophageal dilation.

Dilator Types

Three general types of dilators are currently in use:

- Mercury or tungsten-filled bougies (Maloney or Hurst)
- Wire-guided polyvinyl dilators (Savary-Gilliard or American)
- "Through-the-scope" (TTS) balloon dilators

The Maloney type bougies have a tapered tip and can be passed either blindly or under fluoroscopic control. Fluoroscopy may lead to better functional results and fewer adverse events. This type of dilator is used for simple strictures with a diameter of 12 to 14 mm. The risk of esophageal perforation may be higher with blind passage of Maloney dilators than with Savary or TTS balloons, particularly in patients with a large hiatal hernia, a tortuous esophagus, or those with complex strictures. Savary and American dilators are passed over a guidewire that has been positioned with the tip in the gastric antrum, with or without fluoroscopic guidance. There are a variety of available TTS balloon dilators available in either single or multiple diameters that may be passed with or without wire guidance. A new endoscopically guided bougie has recently become available (InScope) but clinical experience with it is limited.

Preparation

Anticoagulants should be discontinued. Routine antibiotic coverage is not recommended; endocarditis prophylaxis guidelines should be followed. During the informed consent process, patients should be informed about the risk of perforation and the possible need for surgery should it occur. Esophageal dilation is routinely performed in an outpatient setting. Patients should fast for 4 to 6 hours before the procedure. Patients with achalasia are susceptible to esophageal stasis and a prolonged fast or esophageal lavage may be required to empty the esophagus. Although some patients may tolerate dilation with use of only topical anesthesia, conscious sedation is generally used. When bougie dilators are used, neck extension may facilitate passage of the dilator.

Techniques

The degree of dilation within a session should be based on the severity of the stricture. A conservative approach to dilation may reduce the risk of perforation. The "rule of 3" has been accepted and applied to bougie dilation of esophageal strictures. Specifically, the initial dilator chosen should be based on the known or estimated stricture diameter. Serial increases in diameter are then performed. After moderate resistance is encountered with the bougie-type dilator, no greater than 3 consecutive dilators in increments of 1 mm should be passed in a single session. Although this rule does not apply to balloon dilators, a recent study suggested that inflation of a single large diameter dilator (>15 mm) or incremental dilation of greater than 3 mm may be safe in simple esophageal strictures. There are no data on the optimal duration the balloon should remain inflated. Dilation therapy for symptomatic Schatzki's ring is directed toward achieving rupture of the ring; therefore, larger caliber dilators (16-20 mm) may be needed. If a lower esophageal ring cannot be distinguished from a short peptic stricture, graded stepwise dilation is recommended.

During esophageal dilation the endoscopist should be supported by assistants who are familiar with the endoscopic and dilating devices considered for use and are capable of monitoring patient comfort and safety throughout the examination.

Patients should be closely observed after esophageal dilation, with pulse, blood pressure, and temperature measured regularly to detect complications.

Steroid injection into benign strictures immediately before or after dilation has been advocated to improve outcomes by decreasing the need for repeat dilation in strictures that have not responded to initial dilation. Not all causes of stricture respond similarly to steroid injection.

Results

In patients with benign peptic strictures, a graded stepwise dilating approach between 13 and 20 mm yields relief in 85% to 93%. Bougie-type dilators exert not only radial forces as they are passed but also longitudinal forces as the result of a shearing effect. Longitudinal forces are not transmitted with balloon dilators because the entire dilating force is delivered radially and simultaneously over the entire length of the stenosis rather than progressively from its proximal to distal extent. Despite these differences, no clear advantage has been demonstrated between the two dilator types. Factors associated with a poor response to balloon dilation of benign strictures are a length of >8 cm and a small predilation luminal diameter. In patients with benign peptic strictures, the long-term benefits of dilation appear greatest when a luminal diameter of >12 mm is achieved.

For peptic strictures, smaller lumen diameter, presence of a hiatal hernia >5 cm, persistence of heartburn after dilation, and number of dilations needed for initial dysphagia relief were significant predictors of early symptomatic recurrence. A multivariate analysis revealed that a nonpeptic etiology of strictures was a significant predictor of early symptomatic recurrence within 1 year of initial dilation. One study suggested that patients with peptic strictures but without heartburn or patients with weight loss may be more likely to require frequent dilations.

Patients with peptic strictures should be treated with proton pump inhibitor (PPI) therapy.

Achalasia

Before endoscopic treatment, patients with achalasia should be informed of the various therapeutic options available. Symptomatic patients with achalasia who are good surgical candidates should be given the option of either graded pneumatic dilation or cardiomyotomy. Open surgical repair with myotomy of early recognized endoscopic perforation offers an outcome similar to that of elective open myotomy. However, if endoscopic perforation occurs after pneumatic dilation, laparoscopic myotomy is usually not technically feasible. In patients with failed myotomy, pneumatic dilation can be safely performed. The subset of patients in whom this approach has failed may require esophagectomy. In patients who are poor candidates for surgery, initial therapy with botulinum toxin may be the preferred approach. In prohibitive operative candidates, pneumatic dilation is not recommended.

Cost analysis models indicate that, for otherwise healthy patients with achalasia, initial pneumatic dilation was the least costly strategy compared with botulinum toxin injection or laparoscopic Heller myotomy.

Complications

Perforation after esophageal dilation usually occurs at the site of the stricture, either intraabdominally or intrathoracically. This complication should be suspected if severe or persistent pain, dyspnea, tachycardia, or fever develops. The physical examination may reveal subcutaneous crepitus of the chest or cervical region. Although a chest radiograph may indicate a perforation, a normal study result does not exclude this diagnosis and a water-soluble contrast esophagram or contrast chest computed tomogram may be necessary to delineate a perforation.

The use of large-diameter covered metal stents and the use of expandable, removable plastic stents have been shown to be effective in the management of perforations after dilation of benign and malignant esophageal strictures, although the routine use of these devices in benign disease is not recommended.

Esophageal dilation should be performed with caution in patients who have had a recent, healed perforation or upper gastrointestinal surgery. Continuing esophageal perforation is an absolute contraindication to esophageal dilation.

Summary

- Dilation is indicated in patients with symptomatic esophageal strictures (B).
- Fluoroscopy is recommended when using non-wire-guided dilators during dilation of complex esophageal strictures or in patients with a tortuous esophagus (B).
- Bougie and balloon dilators are equally effective in relief of dysphagia in patients with esophageal strictures (A).
- The rule of 3 should be followed when dilation of esophageal strictures is performed with bougie dilators (B).
- Injection of corticosteroids into recurrent or refractory benign esophageal strictures may improve the outcome after esophageal dilation (B).
- Pneumatic dilation with large-diameter balloons is effective for the treatment of achalasia (A).
- Botulinum toxin therapy is the preferred endoscopic treatment for achalasia in poor operative and nonoperative patients (B).
- Administration of PPIs is effective in preventing recurrence of esophageal strictures and the need for repeat esophageal dilation (A).

Definitions:

- A. Prospective controlled trials
- B. Observational studies
- C. Expert opinion

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and classified for the recommendations using the following scheme:

- A. Prospective controlled trials
- B. Observational studies
- C. Expert opinion

When little or no data exist from well-designed prospective trials, emphasis is given to results from large series and reports from recognized experts. Guidelines for appropriate utilization of endoscopy are based on a critical review of the available data and expert consensus.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

The primary indication for esophageal dilation is to relieve dysphagia.

POTENTIAL HARMS

- The principal complications of esophageal dilation are perforation, bleeding, and aspiration. The most serious complication of esophageal dilation is perforation.
- Esophageal dilation should be performed with caution in patients who have had a recent, healed perforation or upper gastrointestinal surgery.

CONTRAINDICATIONS

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Continuing esophageal perforation is an absolute contraindication to esophageal dilation.

QUALIFYING STATEMENTS

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Further controlled clinical studies are needed to clarify aspects of this statement, and revision may be necessary as new data appear. Clinical consideration may justify a course of action at variance to these recommendations.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

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2006 May

GUIDELINE DEVELOPER(S)

American Society for Gastrointestinal Endoscopy - Medical Specialty Society

SOURCE(S) OF FUNDING

American Society for Gastrointestinal Endoscopy

GUIDELINE COMMITTEE

Standards of Practice Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Committee Members: James V. Egan, MD; Todd H. Baron, MD (Vice Chair); Douglas G. Adler, MD; Raquel Davila, MD; Douglas O. Faigel, MD (Chair); Seng-lan Gan, MD; William K. Hirota, MD; Jonathan A. Leighton, MD; David Lichtenstein, MD; Waqar A. Qureshi, MD; Elizabeth Rajan, MD; Bo Shen, MD; Marc J. Zuckerman, MD; Trina VanGuilder, RN (SGNA Representative); Robert D. Fanelli, MD (SAGES Representative)

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the [American Society for Gastrointestinal Endoscopy \(ASGE\) Web site](#).

Print copies: Available from the American Society for Gastrointestinal Endoscopy, 1520 Kensington Road, Suite 202, Oak Brook, IL 60523

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

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